

ATTHEYELLA (MRAZEKIELLA) SPINIPES, A NEW
HARPACTICOID COPEPOD (CRUSTACEA) FROM
ROCK CREEK REGIONAL PARK, MARYLAND

Janet W. Reid

Abstract.—A collection from a spring in Rock Creek Regional Park, Maryland, near the boundary of the District of Columbia yielded the cyclopoid copepods *Macrocylops albidus* (Jurine) and *Eucyclops agilis* (Koch), and the harpacticoid copepods *Attheyella (Mrazekiella) illinoisensis* (S. A. Forbes) and *A. (M.) spinipes*, new species. *Attheyella spinipes* is described and some comments made on morphological features of *A. illinoisensis*.

In a collection of aquatic invertebrates made by Mr. William B. Yeaman and Mr. Stephen W. Syphax of the National Park Service from a spring in Rock Creek Regional Park and brought for determination to Dr. Thomas E. Bowman, Department of Invertebrate Zoology, National Museum of Natural History, were four species of copepods (Crustacea). In order of abundance these were the cyclopoids *Eucyclops agilis* (Koch) and *Macrocylops albidus* (Jurine), and the harpacticoids *Attheyella (Mrazekiella) spinipes*, new species, and *A. (M.) illinoisensis* (S. A. Forbes). *Attheyella spinipes* is described below, together with some comments on the morphology of *A. illinoisensis*.

This collection doubles the number of species of Copepoda recorded from the drainage basin of Rock Creek, an affluent of the Potomac River. The creek and part of its basin are included in Rock Creek National Park in the District of Columbia and its extension, Rock Creek Regional Park in Montgomery County, Maryland. Bowman (1967) recorded the cyclopoids *Cyclops exilis* Coker and *Paracyclops fimbriatus* (Fischer) and the harpacticoid *Bryocamptus zschokkei alleganensis* Coker from a spring-fed pool in the District of Columbia portion of the park. The eurytopic harpacticoid *Phyllognathopus viguieri* (Maupas) was re-

ported by Reid (1985) from a compost heap at T. E. Bowman's residence, located near Turkey Branch in the Montgomery County section.

Attheyella (Mrazekiella) spinipes,
new species
Figs. 1-22

Material.—Holotype: ♀, alcohol-preserved, USNM 232035. Allotype: ♂, alcohol-preserved, USNM 232036. Paratypes: 2 ♀ and 1 ♂, dissected on slides; and 3 ♀, 2 ♂ and 1 copepodite, alcohol-preserved, USNM 232037. All collected 8 Aug 1986 by W. B. Yeaman and S. W. Syphax from covered perennial spring at southeast corner of Maryland Maintenance Facility, Rock Creek Regional Park, Montgomery County, Maryland, approximately 100 m west of boundary with Washington, D.C., 38°59'16"N, 77°03'18"W. Spring is located on approximate border of 100-year flood plain, about 60 m north of Rock Creek.

Description.—Female: Length of holotype excluding caudal setae 0.73 mm; range of lengths of paratypes 0.54-0.66 mm. (Description is a composite of several specimens.) All somites except anal somite with serrate posterior margins (Figs. 1-4); cephalosome with oval nuchal organ. Genital

segment and succeeding 2 somites each with row of spinules near posteroventral margin, this row discontinuous on somite 2. Genital field (Figs. 3, 5) extending to anterior third of segment. Anal somite (Figs. 1, 3, 4) with small spinules on posteroventral border and 1 larger spinule anterior to each caudal ramus on ventral surface; and with crescentic row of short hairs on dorsal surface anterior to each ramus. Anal operculum convex, margin with many spinules. Caudal rami (Figs. 1, 3, 4) slightly divergent, 2.4× broader than long, each with dorsal keel on anterior ¼ which ends in dorsally directed seta. Posterior ¼ of dorsal surface of ramus with group of irregularly arranged spinules. Lateral surface of ramus with 2 setae inserted slightly anterior to midlength and in some specimens, also with few spinules anterior and dorsal to these setae; seta also at distolateral corner. Anterior half of medial surface of ramus with hairs and spinules, arranged irregularly (Fig. 3) or in groups (Fig. 4), some hairs extending to middle of ventral surface (Fig. 3). Outer terminal seta stout, ¾ length of ramus; inner terminal seta very fine, half length of outer terminal seta. Middle terminal seta about ⅔ length of body.

Rostrum (Fig. 2) indistinctly separated from cephalosome, blunt, shorter than antennule article 1. Antennule (Fig. 6) of 8 articles, articles 4 and 8 each with long slender esthetasc. Antenna (Fig. 7) with allobasis; single article of exopod with 4 setae. Mandible, maxillula and maxilla as in Figs. 8–10; maxilliped (Fig. 11) prehensile.

Swimming legs 1–4 (Figs. 12–15) each with exopod and endopod of 3 articles, except endopod of leg 4 which is of 2 articles. Setation formula for major armament as follows:

Leg 1	basis 1-1	exp 0-1; 1-1; 0,2,1 enp 1-0; 1-0; 1,2,0
Leg 2	basis 0-1	exp 0-1; 1-1; 1,2,3 enp 1-0; 1-0; 2,1,1
Leg 3	basis 0-1	exp 0-1; 1-1; 2,2,3 enp 1-0; 1-0; 2,2,1

Leg 4	basis 0-1	exp 0-1; 1-1; 2,2,3 enp 1-0; 3,2,0
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Setae of basipods of legs 1 and 2 and all setae of exopods and endopods of legs 2–4 spiniform; some having heteronomous setules and spinules.

Leg 5 (Fig. 16) with inner expansion of basipod reaching about ¼ length of exopod and bearing 5 spines of which middle spine very short; few hairs on medial and anterior surfaces. Exopod about 3× longer than broad, with groups of hairs on medial and lateral margins, and bearing 5 spines of which next innermost longest. Leg 6 (Fig. 5) consisting of 2 slender plumose setae.

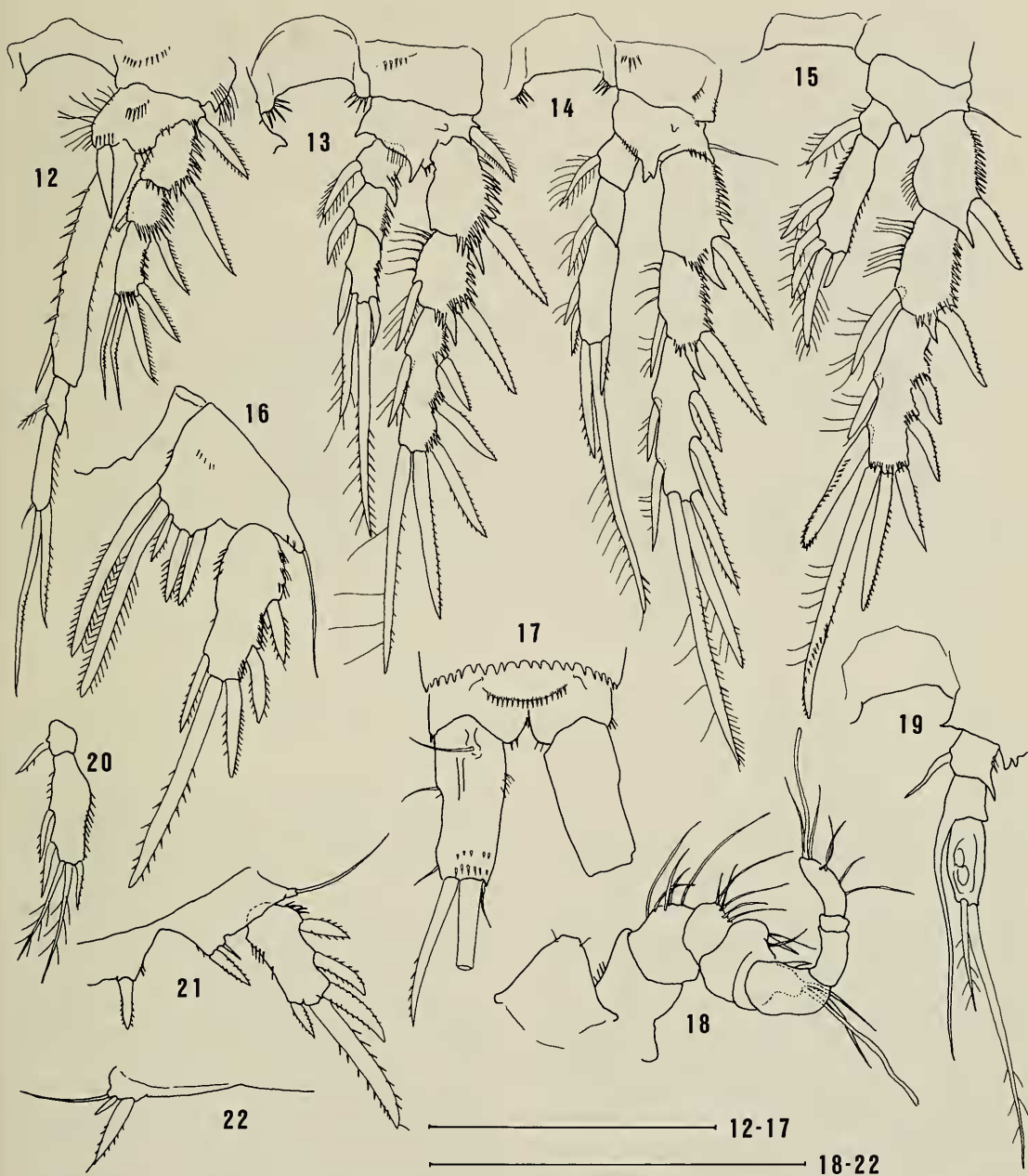
Male: Length of holotype excluding caudal setae 0.44 mm; range of lengths of paratypes 0.45–0.46 mm. Nuchal organ and urosomal armament as in female, except ventral spine rows on urosomites 2–4 continuous. Caudal ramus (Fig. 17) much as in female, except with fewer spinules dorsally. Antennule (Fig. 18) of 8 articles, geniculate, with spines on articles 4 and 5 and slender esthetascs on articles 4 and 8. Antenna, mouthparts, and legs 1 and 2 as in female. Leg 3, exopod as in female with lateral spines not greatly enlarged; endopod (Fig. 19) of 3 articles, article 1 with stout inner seta, article 2 with slender apophysis lacking terminal barb, article 3 ending in 2 slender setae. Leg 4, exopod as in female, endopod article 2 (Fig. 20) with 3 spines and 2 slender terminal setae.

Leg 5 (Fig. 21), basipods fused, inner portion of each basipod little expanded, with stout inner and small outer spine; exopod much as in female except spines, particularly innermost spine, relatively stouter. One specimen with 2 spines on one basipod and 1 spine on other. Leg 6 (Fig. 22) consisting of 1 stout medial spine, 1 small middle spine and 1 slender lateral seta.

Etymology.—From L. “spiny-foot,” referring to the spiniform setae of the swimming legs; proposed as a noun in apposition.

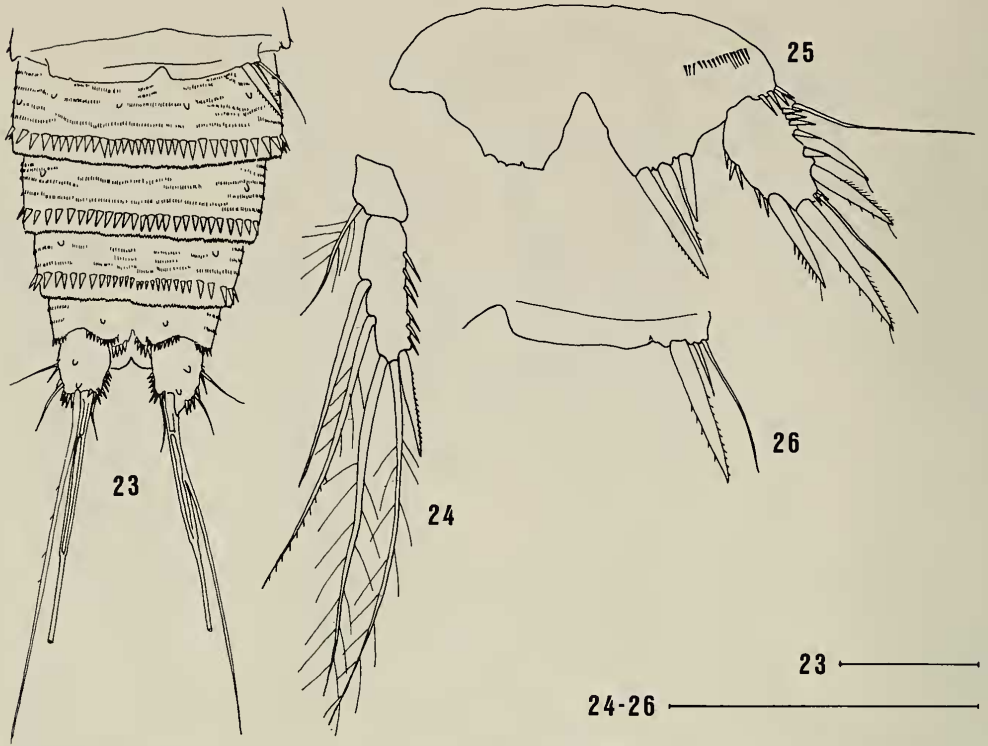
Relationships.—*Attheyella spinipes* keys





Figs. 12–22. *Attheyella (Mrazekiella) spinipes*, new species. 12–16, Female: 12, Leg 1; 13, Leg 2; 14, Leg 3; 15, Leg 4; 16, Leg 5. 17–22, Male: 17, Caudal rami and anal somite, dorsal; 18, Rostrum and antennule; 19, Leg 3, endopod; 20, Leg 4, endopod; 21, Leg 5; 22, Leg 6. Scales = 100 μm.

Figs. 1–11. *Attheyella (Mrazekiella) spinipes*, new species, female: 1, Habitus, lateral; 2, Cephalosome, dorsal, showing nuchal organ; 3, Urosome, ventral; 4, Caudal ramus and anal somite of a second female, dorsal; 5, Genital field and leg 6; 6, Antennule; 7, Antenna; 8, Mandible; 9, Maxillula; 10, Maxilla; 11, Maxilliped. Scales = 100 μm.



Figs. 23–26. *Attheyella* (*Mrazekiella*) *illinoisensis* (S. A. Forbes), male: 23, Urosome, ventral; 24, Leg 4, endopod; 25, Leg 5; 26, Leg 6. Scales = 100 μ m.

to the *A. pilosa*/*A. carolinensis* couplet in Wilson and Yeatman's key to North American Harpacticoida (1958). It is similar to these two species, redescribed and compared by Bowman et al. (1968), in having caudal rami about 2.5–3 $\times$ longer than broad. *Attheyella spinipes* differs most obviously in having fewer hairs and spinules on the somites and caudal rami; endopods of legs 2 and 3 of 3, not 2 articles; and in the spiniform setae of legs 2–4. In addition, the female of *A. carolinensis* has 4, not 5 setae on the basipod of leg 5. Neither *A. carolinensis* nor *A. pilosa* has been recorded from Maryland nor from the Virginia piedmont (Bowman et al. 1968).

Attheyella (*Mrazekiella*) *illinoisensis*
(S. A. Forbes, 1882)
Figs. 23–26

Inspection of the single male of this species in the collection revealed some slight mor-

phological differences from Coker's redescription (1934) as well as some possible errors in Coker's figures. Coker did not mention rounded papillae on the ventral surface of the urosome, though his Text-Fig. 4 shows 2 on the female anal somite and 2 on each caudal ramus. The male from Rock Creek has 2–6 papillae on each urosomite and 2 on each caudal ramus (Fig. 23). Coker's figure for article 2 of the endopod of leg 4 of the male shows 4 setae and a short outer subterminal spinule; the Rock Creek male has 4 setae and a moderately long subterminal spine (Fig. 24), and therefore the correct spine formula for the endopod is probably 1–0; 221. There is a row of spinules on the anterior surface of the basipod of leg 5 (Fig. 25), a feature not mentioned by Coker. Finally, Coker's figure for leg 6 shows only 2 long setae. Since the Rock Creek specimen has 1 long and 1 short seta and a stout inner spine (Fig. 26), and Pearse (1905) figured a leg 6 with 2 setae and a stout inner spine,

all of equal length, it is probable that Coker's specimen was simply missing the inner spine. None of these variations has significance at the species level; Coker (1934) particularly called attention to morphological variability in this widespread and common species.

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Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.